

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***STATEMENT OF BASIS/SUMMARY***

Title V, Construction/Operating

Permit: V-20-025

Buffalo Trace Distillery Inc.

Frankfort, KY 40601

September 22, 2020

Dane Ison, Reviewer

SOURCE ID: 21-073-00009

AGENCY INTEREST: 1373

ACTIVITY: APE20180001 & APE20200004

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## SECTION 1 – SOURCE DESCRIPTION

SIC Code: 2085, Distilled and Blended Liquors

Single Source Det. ☐ Yes ☒ No If Yes, Affiliated Source AI:

Source-wide Limit ☒ Yes ☐ No If Yes, See Section 4, Table A

28 Source Category ☒ Yes ☐ No If Yes, Category: Fossil-fuel boilers, or combination of fossil-fuel boilers, totaling more than 250 million BTUs per hour heat input, Nested Source

County: Franklin

Nonattainment Area ☒ N/A ☐ PM<sub>10</sub> ☐ PM<sub>2.5</sub> ☐ CO ☐ NO<sub>x</sub> ☐ SO<sub>2</sub> ☐ Ozone ☐ Lead

PTE\* greater than 100 tpy for any criteria air pollutant ☒ Yes ☐ No

If yes, for what pollutant(s)?

☒ PM<sub>10</sub> ☐ PM<sub>2.5</sub> ☒ CO ☒ NO<sub>x</sub> ☐ SO<sub>2</sub> ☒ VOC

PTE\* greater than 250 tpy for any criteria air pollutant ☒ Yes ☐ No

If yes, for what pollutant(s)?

☒ PM<sub>10</sub> ☐ PM<sub>2.5</sub> ☐ CO ☒ NO<sub>x</sub> ☐ SO<sub>2</sub> ☒ VOC

PTE\* greater than 10 tpy for any single hazardous air pollutant (HAP) ☒ Yes ☐ No

If yes, list which pollutant(s): Acetaldehyde

PTE\* greater than 25 tpy for combined HAP ☐ Yes ☒ No

\*PTE does not include self-imposed emission limitations.

### Description of Facility:

Buffalo Trace Distillery, LLC (BTD) produces distilled spirits. Grain is unloaded via pneumatic conveying (PM). Grain is ground in hammer mills and then introduced to mash cookers with water, where heat converts the grain starches to sugar. The grain/water mixture is fed to fermenter vessels where the sugars are converted to ethanol. The mixture is then processed through distillation columns and condensers. The resultant liquid is stored in tanks or added directly to barrels for aging. The spent grain is dried and sold as distiller's dried grain. Additionally, liquids containing beverage ingredients are received and shipped in bulk for blending.

With the issuance of permit V-20-025, BTD is considered a synthetic minor source by limiting emissions of non-fugitive VOC process emissions and NO<sub>x</sub> to less than 250 tons per 12-month rolling total. BTD operates a "nested" major stationary source under the Prevention of Significant Deterioration (PSD) program that consists of all fossil-fuel boilers and is subject to the 100 tpy threshold defined in 401 KAR 51:001, Section 1 (118)(a)2.a., because it is a 28-source category. The "nested" source itself is a major stationary source at over 100 tpy of regulated NSR pollutant. Therefore, BTD is a synthetic minor stationary source with a nested 28-source category existing major stationary source. Fugitive emissions attributed from the fossil-fuel boilers are counted towards Title V and PSD emissions potential. The table below provides each emission unit's heat input and the source-wide heat input.

Emission Unit	Description	Heat Input Capacity
Emission Unit 08	One 176 MMBtu/hr natural gas-fired indirect heat exchanger (1/1/1972)	176 MMBtu/hr De-rated to 140.8 MMBtu/hr
Emission Unit 14	One 60.5 MMBtu/hr natural gas-fired indirect heat exchanger (9/1/2002); previously 14 & 15 were identified as 58 MMBtu/hr	60.5 MMBtu/hr
Emission Unit 15	One 60.5 MMBtu/hr natural gas-fired indirect heat exchanger which burns Grain Neutral Spirits as a secondary fuel (9/1/2002).	60.5 MMBtu/hr
Emission Unit 16	One 179.2 MMBtu/hr natural gas-fired indirect heat exchanger installed in 2018 (9/1/2002)	179.2 MMBtu/hr
Emission Unit 20	Six small natural gas-fired indirect heat exchangers; four 1.44 MMBtu/hr and two 1.88 MMBtu/hr (2018)	9.52 MMBtu/hr
Emission Unit 30	Fourteen 5 MMbtu/hr natural gas-fired indirect heat exchangers one for each of the new rickhouses; operated for space heat (2020-2022)	70 MMBtu/hr
Total Heat Input Source-Wide	Twenty-Four indirect heat exchangers located (present and future) at the facility	555.72 MMBtu/hr, source-wide (limited to 520.52 MMbtu/hr)

## SECTION 2 – CURRENT APPLICATIONS

Permit Number: V-20-025

Activities: APE20180001 & APE20200004

Received: 02/12/18 & 8/11/2020

Application Complete Date(s): 04/03/18 & 09/22/20

Permit Action: ☐ Initial ☒ Renewal ☒ Significant Rev ☐ Minor Rev ☐ Administrative

Construction/Modification Requested? ☒ Yes ☐ No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action ☒ Yes ☐ No

On March 3, 2016 Buffalo Trace submitted an application (APE20160001) to replace one of the four rotary steam tube dryer and pneumatic conveying cyclone separator (Emission Unit 05) with a new dryer with the same capacity and operating rate. This rotary dryer has been move to Emission Unit 04.

On February 1, 2017 Buffalo Trace submitted an application (APE20170001) to replace two more of the four rotary steam tube dryer and pneumatic conveying cyclone separator (Emission Unit 05) with new dryers with the same capacity and operating rate. These rotary dryers have been moved to Emission Unit 04.

### Description of Action:

BTD applied to renew their permit V-12-056 and to request construction authority to install a 179 MMBtu/hr natural gas boiler. During the Division's review process it was identified that BTD had exceeded the threshold of 250 MMBtu/hr total heat input capacity for fossil-fuel boilers, triggering requirements for a major stationary source, in regards to PSD review, at 100 tpy for any regulated NSR pollutant. BTD submitted a supplement to the Title V Renewal application, including existing emission units not previously identified in the permit, and a Significant Revision application on August 11, 2020.

#### SIGNIFICANT REVISION:

To meet market demand, the Buffalo Trace Distillery is in the midst of an expansion that will more than double the Distillery's production. The following construction activities are required to achieve the increase in production:

- 1) Installing a new 179 MMBtu/hr natural gas-fired boiler for generating steam (Emission Unit 16) on 12/1/2018, which when used in combination with Boiler 10 (Emission Unit 14), Boiler 11 (Emission Unit 15), and/or Boiler 9 (Emission Unit 8) satisfies the existing steam demands for the pre-expansion activities. Once the expansion is complete, BTD expects that the peak demands of short-term steam generation will exceed an equivalent heat input capacity of 250 MMBtu/hr.
- 2) Installing fourteen (14) planned new barrel warehouses (EU 06-002) from 2017 to 2022.
- 3) Installing fourteen (14) new 5 MMBtu/hr natural gas-fired indirect heat exchangers (EU 30), where one will be installed in each new barrel warehouse from 2017 to 2022.
- 4) Removing bottling lines #1 through #8 [Insignificant Activities (IAs) 16-23 in the existing permit] and replacing with high speed/capacity bottling lines A, B, C, and D (EU 07) in 2019. Miscellaneous process/storage tanks associated with the new bottling lines were also installed at this time.

- 5) Expanding cooking operations, with two (2) additional cookers (40,000 gallon each). While these new units represent twice the capacity of the existing cookers, they are not considered to be an appreciable source of air emissions.
- 6) Expanding cooling operations by replacing the existing cooling tower in 2019 with a two-cell counterflow cooling tower (IA25) and installing two similar units (proposed IA48 and IA49).
- 7) Doubling the fermentation capacity by adding twelve (12) new 92,000-gallon fermentation vessels in 2019 and 2021. The first set of four (4) vessels was installed in 5/2019 (EU 03-002), and the remaining eight (8) vessels installation will be finished in 2021 (EU 03-003).
- 8) Adding emergency electricity generation to critical control operations and firewater pump capabilities. Specifically, BTD added two (2) equivalent Clarke Firewater Pump Engines on the Farm (EU 27 and EU 28) in 2016, another Clarke Firewater Pump Engine near the S Rickhouse (EU 29) in 2018, and a backup generator with a diesel-fired engine (EU 26) next to the building housing the new bottling lines in 2018.
- 9) Increasing milling capacity by adding up to three (3) new hammer mills with process cyclone(s) in 2022 (EU 02-002, 02-003, and 02-004).
- 10) Installing a new still house [with beer still in 2022 (proposed EU 31-001), doubler still in 2022 (proposed EU 31-002)], dry house [with two centrifuges in 2022 (proposed EU 32-001), steam dryers in 2022 (proposed EU 32-002), and conveying cyclone separators in 2022 (proposed EU 32-004)]. Once the support facilities have been installed, BTD intends to install units that have the same production capacities as the existing process units.
- 11) Replacing the Wastewater Treatment Plant (proposed IA24B).

#### Defining the Source:

A stationary source is a building, structure, facility, or installation that emits or has the potential to emit a regulated NSR pollutant. A “building, structure, facility, or installation” is defined as all pollutant emitting activities that: belong to the same industrial grouping or have the same two digit major group SIC code; are on contiguous or adjacent properties; and are under control of the same person or persons under common control. The pollutant emitting activities at Buffalo Trace meet these criteria, so they belong to the same stationary source.

Under the PSD program, a source is major if it has the potential to emit a “regulated NSR pollutant” in amounts equal to or exceeding specified major source thresholds: sources listed in 401 KAR 51:001, Section 1(118)(a)2.a. have a 100 tpy threshold and all other sources have a 250 tpy threshold. Fossil-fuel boilers, or combination of fossil-fuel boilers, totaling more than 250 MMBTU/hr heat input are listed in 401 KAR 51:001, Section 1(118)(a)2.a., so they have a 100 tpy major source threshold.

Since the inception of the PSD program, BTD has operated fossil-fuel boilers, *i.e.* indirect heat exchangers, with a combined capacity total of more than 250 MMBtu/hr. A brief history of the total heat input capacity for all indirect heat exchangers as well as certain facts that effect the determination has been summarized in the table below:

Year	Description	Total Heat Input for Indirect Heat Exchangers (Source-wide)
1972-2002 Including original Title V Permit V-98-032	Emission Unit 08 - 176 MMBtu/hr - fuel oil - Boiler #9 (1972) Emission Unit 09 - 126 MMBtu/hr - coal - Boiler #7 (1951) Emission Unit 10 - 63 MMBtu/hr fuel oil - Boiler #8 (1972) In the original Title V application, the source identified actual emissions based on throughput records to exceed the 401 KAR 51:001, Section 1(118)(a)(2)a. Major Source threshold of 100 tpy for any regulated NSR pollutant. Emission for SO <sub>2</sub> was 178.17 tpy.	365 MMBtu/hr
V-98-032 R2 issued 8/5/2002	Emission Unit 08 - 176 MMBtu/hr - fuel oil - Boiler #9 (1972) Emission Unit 09 - 126 MMBtu/hr - coal - Boiler #7 (1951) Emission Unit 10 - 63 MMBtu/hr fuel oil - Boiler #8 (1972) Added Emission Unit 14 - 58 MMBtu/hr - natural gas - (5/9/2002) Emission Unit 15 - 58 MMBtu/hr - natural gas - (5/9/2002) In actuality these boilers were constructed with a capacity of 60.5 MMBtu/h each	486 MMBtu/hr; source identified itself as a Synthetic Minor <250 tpy to avoid Major Source status.
V-03-032 Title V Renewal	Emission Unit 08 - 176 MMBtu/hr - natural gas - Boiler #9 (1972) Emission Unit 09 - 126 MMBtu/hr - coal - Boiler #7 (1951) Emission Unit 10 - 63 MMBtu/hr fuel oil - Boiler #8 (1972) Emission Unit 14 - 60.5 MMBtu/hr - natural gas - (5/9/2002) Emission Unit 15 - 60.5 MMBtu/hr - natural gas - (5/9/2002)	486 MMBtu/hr
V-07-038 Title V Renewal APE20070001	Emission Unit 08 - 176 MMBtu/hr - natural gas - Boiler #9 (1972) Emission Unit 09 - 126 MMBtu/hr - coal - Boiler #7 (1951) Emission Unit 10 - 63 MMBtu/hr fuel oil - Boiler #8 (1972) Emission Unit 14 - 60.5 MMBtu/hr - natural gas - (5/9/2002) Emission Unit 15 - 60.5 MMBtu/hr - natural gas - (5/9/2002)	486 MMBtu/hr
V-12-056 Title V Renewal APE20120002	Emission Unit 08 - 176 MMBtu/hr - natural gas - Boiler #9 (1972) Emission Unit 10 - 63 MMBtu/hr fuel oil - Boiler #8 (1972) Emission Unit 14 - 60.5 MMBtu/hr - natural gas - (5/9/2002) Emission Unit 15 - 60.5 MMBtu/hr - natural gas - (5/9/2002)	360 MMBtu/hr
APE20180001 Renewal V-20-025	Emission Unit 08 - 176 MMBtu/hr - natural gas - Boiler #9 (1972) Emission Unit 10 - 63 MMBtu/hr fuel oil - Boiler #8 (1972) Emission Unit 14 - 60.5 MMBtu/hr - natural gas - (5/9/2002) Emission Unit 15 - 60.5 MMBtu/hr - natural gas - (5/9/2002)	360 MMBtu/hr
APE20200004	Emission Unit 08 - 176 MMBtu/hr - natural gas - Boiler #9 (1972) Emission Unit 14 - 60.5 MMBtu/hr - natural gas - (5/9/2002) Emission Unit 15 - 60.5 MMBtu/hr - natural gas - (5/9/2002) Emission Unit 16 - 179 MMBtu/hr - natural gas - (late 2018) Emission Unit 20 – Six small natural gas-fired indirect heat	476 MMBtu/hr

	exchangers; four 1.44 MMBtu/hr and two 1.88 MMBtu/hr (2018) Emission Unit 30 – Fourteen 5 MMBtu/hr natural gas-fired indirect heat exchangers one for each of the new rickhouses; operated for space heat (2020-2022)	
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With this permitting action, BTD will contain a “nested” PSD source comprised of all fossil-fuel boilers, *i.e.* indirect heat exchangers, which is located within the facility (boiler source). The “nested” source totals more than 250 MMBTU/hr heat input, so it is subject to the 100 tpy major source threshold in 401 KAR 51:001, Section 1(118)(a)2.a. The “nested” boiler source is an existing major source because the PTE exceeds 100 tpy of NO<sub>x</sub>. BTD has requested a synthetic minor limitation on NO<sub>x</sub> emissions to less than the significant emission rate from boilers associated with the expansion project.

The source, which includes the “nested” boiler source and the remaining emissions units at the facility, is subject to the 250 tpy major source threshold in 401 KAR 51:017, Section 1(118)(a)2.b. The source is an existing major PSD source because the potential to emit exceeds 250 tpy of NO<sub>x</sub>. BTD requests to limit the heat input capacity of Emission Unit 08 from the nameplate capacity of 176 MMBtu/hr to 140.8 MMBtu/hr. By limiting the heat input to EU 08 and applying a NO<sub>x</sub> emission factor developed for the reduced capacity through performance testing of the unit, the source status of the facility changes from existing major stationary source to a synthetic minor source.

BTB has requested additional source-wide and unit-specific limitations to preserve the distillery source’s categorization as a synthetic minor source with the expansion. Specifically, source-wide limitations on non-fugitive emissions, including insignificant activities on VOC and NO<sub>x</sub> emissions less than the major stationary source threshold, a VOC emission limitation on the DDGS Dryhouse #2, and a throughput limitation on the bottling lines.

Overall source wide-emissions after project expansion.

V-20-025 Emission Summary				
Pollutant	2017 Actual (tpy)	Previous PTE V-12-056 (tpy)	<sup>[1]</sup> Change (tpy)	Revised PTE V-20-025 (tpy)
<sup>[2]</sup> CO	24.45	110	91.7	202.49
NO <sub>x</sub>	38.43	238	50.7	307.61
PT	68.35	109	133	150.24
PM <sub>10</sub>	26.96	59.5	70.9	101.33
PM <sub>2.5</sub>	7.84	29.9	28.4	44.23
SO <sub>2</sub>	0.17	1.52	0.66	1.36
VOC	2876.88 <sup>[3]</sup>	196	100	292.59
Lead	1.45E-4	7.78E-4	6.88E-4	1.25E-3
Greenhouse Gases (GHGs)				
Carbon Dioxide	34,827	186,588		269,698.94
Methane	0.67	3.58		5.08
Nitrous Oxide	0.64	3.42		0.51
CO <sub>2</sub> Equivalent (CO <sub>2</sub> e)	35,034	143,303		269,702.44
Hazardous Air Pollutants (HAPs)				
Acetaldehyde	-	7.33		9.22
Formaldehyde	-	0.60		1.13
Hexane	-	2.02		4.05
Methanol	-	1.44-		1.64
HAPS	-	12.1		16.71

<sup>[1]</sup> Does not include the removal of EU 10 and EU 12 credits as “netting analysis” was not represented in the Application. Also, previously, HAPS were not included except for Formaldehyde prior to Renewal APE20180001 addendum application received on 8/11/2020.

<sup>[2]</sup> CO emission factor for EU 08 was incorrectly changed from 550 lb/MMscf to 100 lb/MMscf. Based on the most recent application and test conducted, the more appropriate factor is 280 lbs/MMscf which matches AP-42 for a unit of similar size and the test conducted in June of 2020.

<sup>[3]</sup> Includes Fugitive Process VOC emissions.

### SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

#### Emission Unit 01

Emission Unit #1 (01-001, 01-002, 01-005 & 03-005) Grain and Distiller's Dried Grain Handling						
Pollutant	Emission Limit or Standard		Regulatory Basis for Emission Limit or Standard		Emission Factor Used and Basis	Compliance Method
PM	Discharge of visible fugitive dust emissions beyond property line for more than 5 minutes during any 60 minute observation period or more than 20 minutes during any 24 hour period		401 KAR 63:010, Section 3(2)		AP-42 Section 9.9.1 May 1994	U.S. EPA Reference Method 22 if fugitive dust emissions observed beyond lot line of property
Emission Point	Construction Commenced	Operating Rate (tons/hr)	Emission Factor			
			PM (lb/ton)	PM <sub>10</sub> (lb/ton)	PM <sub>2.5</sub> (lb/ton)	
01-001	1974	56	0.9	0.5	0.009	
01-002	1974	56	10	0.5	0.1	
01-005	1974	25.2	2.4	1.2	0.024	
03-005	1969	33	0.31	0.1	0.01	
<b>Initial Construction and Modification Date:</b> 1969 (03-005) and 1974 (01-001, 01-002, 01-005)						
<b>Process Description:</b> Equipment used to unload and convey grain and distiller's dried grain						
<b>Applicable Regulation:</b> 401 KAR 63:010, Fugitive emissions is applicable to each facility, apparatus, operation, or road which emits or may emit fugitive emissions provided that the fugitive emissions from such facility are not elsewhere subject to an opacity standard within the administrative regulations of the Division.						
<b>Comments:</b> Emission Factors are from AP-42 Section 9.9.1 May 1994 submitted by the source, accepted by the Division and available in KYEIS. The permittee shall monitor and record the amount of grain received and processed on a monthly basis. The permittee shall also monitor and record the amount of distiller's dried grain processed on a monthly basis.						

**Emission Unit 02**

<b>Emission Unit 02 (01-006) Hammer Mill and Receiver Process Cyclone</b>					
<b>Pollutant</b>	<b>Emission Limit or Standard</b>		<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
PM	E=2.58 lb/hr, $P \leq 0.50$ E=4.10P <sup>0.67</sup> , $0.50 < P \leq 30$ E=55P <sup>0.11</sup> -40, $P > 30$ P = operating rate in tons per hour		401 KAR 61:020, Section 3(2)(a)	AP 42 Chapter 9.9-1	Assumed to be in compliance when process cyclone is operated per manufacturer specifications and standard operating procedures
Opacity	40%		401 KAR 61:020, Section 3(1)(a)	N/A	Weekly visual observation and if visible emissions observed, perform a U.S. EPA Reference Method 9 test
Emission Point	Construction Commenced	Operating Rate (tons/hr)	Emission Factor		
			PM (lb/ton)	PM <sub>10</sub> (lb/ton)	PM <sub>2.5</sub> (lb/ton)
01-006	1/1/1969	25.2	0.12	0.06	0.012
<b>Process Description:</b> Mill to process grain with receiver process cyclone used to control emissions <b>Applicable Regulation:</b> 401 KAR 61:020, Existing process operations <b>Comments:</b> Emission Factors are from AP 42 Chapter 9.9-1 (7/94). The permittee shall monitor and record the tons of grains processed and the hours of operation. on a monthly basis.					

**Emission Unit 02B**

Emission Unit 02B (02-002, 02-003 & 02-004) New Hammer Mill and Receiver Process Cyclones					
Pollutant	Emission Limit or Standard		Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	E=2.34 lb/hr, P≤0.50 E=3.59P <sup>0.62</sup> , 0.50<P≤30 P = operating rate in tons per hour		401 KAR 59:010, Section 3(2)	AP 42 Chapter 9.9-1	Assumed to be in compliance when process cyclones are operated per manufacturer specifications and standard operating procedures
Opacity	20%		401 KAR 59:010, Section 3(1)(a)	N/A	Weekly visual observation and if visible emissions observed, perform a U.S. EPA Reference Method 9 test
Emission Point	Construction Commenced	Operating Rate (tons/hr)	Emission Factor		
			PM (lb/ton)	PM <sub>10</sub> (lb/ton)	PM <sub>2.5</sub> (lb/ton)
02-002	Proposed 2021	25.2	0.12	0.06	0.012
02-003	Proposed 2021	25.2	0.12	0.06	0.012
02-004	Proposed 2022	25.2	0.12	0.06	0.012
<b>Process Description:</b> Consists of 3 hammer mills to process grain and receiver process cyclones used to control emissions					
<b>Applicable Regulation:</b> 401 KAR 59:010, New process operations					
<b>Precluded Regulations:</b> 401 KAR 51:017, Prevention of significant deterioration of air quality					
<b>Comments:</b> Emission Factors are from AP-42 Chapter 9.9-1 (7/94). The permittee shall monitor and record the tons of grains processed and hours of operation on a monthly basis.					

### Emission Unit 03

Emission Unit 03 (02-001, 02-005, 03-002, & 03-003) Fermentation Tanks					
Emission Point	Construction Commenced	Equipment Includes	Emission Factor		
			VOC	CO <sub>2</sub>	Acetaldehyde
02-001 & 02-005	1936 & 1952	12 fermenters	14.3 lb/1,000 bu (AP-42 9.12.3-1)	13.6 lb/1,000 bu (Mass Balance)	0.057 lb/1,000 bu POET <a href="https://permits.air.idem.in.gov/37437d.pdf">https://permits.air.idem.in.gov/37437d.pdf</a> )
03-002	2019	4 fermenters			
03-003	Proposed 2021	8 fermenters			
<b>Process Description:</b> Fermentation Tanks and for cooking the mash					
<b>Applicable Regulations:</b> 401 KAR 50:012, General application 401 KAR 63:020, Potentially hazardous matter or toxic substances					
<b>Precluded Regulations:</b> 401 KAR 51:017, Prevention of significant deterioration of air quality,					
<b>Comments:</b> Emission Factors are from AP-42 Chapter 9.12.13-1, emissions testing, and mass balance. The permittee monitor and record the grain input in 1000-bushels on a monthly basis.					

### Emission Unit 04

Emission Unit 04 (03-001) Rotary Dryer with Cyclone Separator								
Pollutant	Emission Limit or Standard		Regulatory Basis for Emission Limit or Standard		Emission Factor Used and Basis		Compliance Method	
PM	E=2.34 lb/hr, P≤0.50 E=3.59P <sup>0.62</sup> , 0.50<P≤30 E=17.31P <sup>0.16</sup> , P>30 P = operating rate in tons per hour		401 KAR 59:010, Section 3(2)		AP-42 9.9.1-3		Assumed when the cyclone is operated with manufacturer's specification and standard operating procedures	
Opacity	20% opacity		401 KAR 59:010, Section 3(1)(a)		N/A		Weekly visual observation and if visible emissions observed, perform a U.S. EPA Reference Method 9 test	
Emission Point	Description	Operating Rate	Construction commenced	Emission Factor				
				PM	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC	HAPS
03-001	No. 1 Rotary Dryer, Steam Tube and Cyclone Separator	2.5 tons/hr	1976	3.0 lb/ton	1.5 lb/ton	0.69 lb/ton	0.494 lb/ton	0.035 lb/ton

**Emission Unit 04 (03-001) Rotary Dryer with Cyclone Separator**

**Applicable Regulation:**

401 KAR 50:012, General application  
401 KAR 59:010, New process operations  
401 KAR 63:020, Potentially hazardous matter or toxic substances, based on the parameters and modeling assumptions utilized, the predicted maximum residential impact of Acetaldehyde is in compliance with the 401 KAR 63:020 standard.

**Comments:**

Emission factors are from AP-42 9.1.1-3 (PM) and Engineering Judgment. The permittee monitor and record the grain processed and the quantity of DDGS produced and hours of operation, on a monthly basis.

**Emission Unit 05**

**Emission Unit 05 (03-002 & 03-003) Dryhouse #1 Rotary Dryers (3) and Cyclone Separator**

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method	
PM	E=2.58 lb/hr, P≤0.50 E=4.10P <sup>0.67</sup> , 0.50<P≤30 E=55P <sup>0.11</sup> -40, P>30 P = operating rate in tons per hour	401 KAR 61:020, Section 3(2)(a)	AP-42 9.9.1-3 (7/94)	Assumed when the cyclone is operated with manufacturer's specification and standard operating procedures	
Opacity	40%	401 KAR 61:020, Section 3(1)(a)	N/A	Weekly visual observation and if visible emissions observed, perform a U.S. EPA Reference Method 9 test	
Emission Point	Description	Operating Rate	Construction commenced	Emission Factor	Reference
03-002	Pneumatic Cyclone Separator (KYEIS 005-2)	4.0 tons/hr	1976 - Cyclone	PT-3 lb/ton PM10-1.5 lb/ton PM2.5-0.69 lb/ton VOC-0.494 lb/ton	AP-42 9.9.1-3 (7/94) & Engineering Judgement
03-003	Rotary Dryers (KYEIS 005-1	4.0 tons/hr	1969	VOC – 3.56 lb/ton	Engineering Judgement

**Process Description:**

Rotary dryer for grain drying

**Applicable Regulation:**

401 KAR 50:012, General application;  
401 KAR 61:020, Existing process operations;  
401 KAR 63:020, Potentially hazardous matter or toxic substances

**Emission Unit 05 (03-002 & 03-003) Dryhouse #1 Rotary Dryers (3) and Cyclone Separator**

**Comments:**

KYEIS ID 005-1 pneumatic cyclone separator, KYEIS ID 005-2 rotary dryers

1 - Pneumatic conveying cyclone separator from Rotary Dryers Nos.2-4 - 1/1/1973; added emissions of VOCs and HAPs from this process ID. See Notes 3-5 (pg 59/166 of final expansion application) for details. Maximum throughput updated to more accurately reflect capacity of system. See Notes 5-7 (pg 59 of 166 in final expansion application) for details. Maximum throughput updated to more accurately reflect capacity of system.

2 - Nos. 2 - 4 Rotary Steam Tube Dryers (03-002 and 03-003) - 1/1/1969; added emissions of VOC and HAPS for this process ID; See Notes 5-7 (pg 59 of 166 in final expansion application) for details. Maximum throughput updated to more accurately reflect capacity of system.

3 - Centrifuge - added emissions of VOC and HAPS for this existing unit that's never been in the permit with a new process ID; process 3 is considered fugitive

The permittee monitor and record the grain processed and the quantity of DDGS produced and hours of operation, on a monthly basis.

**Emission Unit 32**

**Emission Unit 32 (32-001, 32-002, 32-003 & 32-004) DDGS Dryhouse #2**

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard		Emission Factor Used and Basis	Compliance Method	
PM	E=2.34 lb/hr, $P \leq 0.50$ $E = 3.59P^{0.62}$ , $0.50 < P \leq 30$ P = operating rate in tons per hour	401 KAR 59:010, Section 3(2)		Engineering Judgement	Assumed when the cyclone is operated with manufacturer's specification and standard operating procedures	
Opacity	20%	401 KAR 59:010, Section 3(1)(a)		N/A	Weekly visual observation and if visible emissions observed, perform a U.S. EPA Reference Method 9 test	
VOC	16.0 tons/yr on 12-month rolling total basis	Preclude 401 KAR 51:017 and 51:001, Section 1(118)(a)2.b.		See table below	12-month rolling total emission calculation	
Emission Point	Description	Operating Rate (SCC/hr)	Construction commenced	Pollutant	Emission Factor (lb/SCC)	Reference
32-001	Two Centrifuges (KYEIS 032-1)	18000 gallons/hr	Proposed 2022	VOC Acetaldehyde Acrolein Methanol	4.62E-05 4.90E-07 2.05E-06 2.05E-06	Engineering Judgement
32-002	Two Steam Dryers (KYEIS 032-2)	6.5 tons/hr	Proposed 2022	VOC Acetaldehyde Acrolein Methanol Formaldehyde	3.56 0.22 0.013 0.044 0.001	

Emission Unit 32 (32-001, 32-002, 32-003 & 32-004) DDGS Dryhouse #2						
32-003	Two Steam Dryer By-Passes (032-3)	6.5 tons/hr	Proposed 2022	VOC Acetaldehyde Acrolein Methanol Formaldehyde	3.56 0.22 0.013 0.044 0.001	
32-004	Pneumatic Cyclone Separator (KYEIS 032-4)	6.5 tons/hr	Proposed 2022	PM <sub>10</sub> PM <sub>2.5</sub> PT VOC Acetaldehyde Acrolein Methanol Formaldehyde	1.5 0.69 3.0 0.494 0.02 0 0 0.015	

**Process Description:** Distilled grain drying process.

**Applicable Regulation:**

401 KAR 50:012, General application

401 KAR 59:010, New process operations;; and

401 KAR 63:020, Potentially hazardous matter or toxic substances

**Precluded Regulation:**

401 KAR 51:017, Prevention of significant deterioration of air quality

**Comments:**

Notes: 1 - Two Centrifuges - 3/1/2022 - S-32-001 - Diameter: 1.0'; height: 40'; Flowrate: 2,356acfm; Temp: 89 deg. F

2 - Two Steam Dryers - 3/1/2022 - S-32-002 - Diameter: 1.92'; height: 40'; airflow: 8,686 acfm; Temp: 200 deg. F; Per audit disclosure and expansion project, BTB will voluntarily install and operate an RTO to control emissions from the dryers

3 - Two Steam Dryers By-Pass - 3/1/2022 - S-32-003 - Diameter: 1.92'; height: 40'; airflow: 8,686 acfm; Temp: 200 deg. F; Per audit disclosure and expansion project, the #2 Dryhouse requires a by-pass for maintenance, startup, shut-down, and malfunction periods. Please include an operational restriction of no more than 500 hours per year.

4 - Pneumatic conveying cyclone separator from Rotary Dryers 3/1/2022 - S-32-004 Diameter: 2.0'; height: 40'; airflow: 9,425 acfm; Temp: 89 deg. F

The permittee shall conduct an initial performance test on 32-002 to establish an uncontrolled VOC emission factor, the control efficiency of VOC provided by the thermal oxidizer (32-005), and to establish the minimum temperature set point(s) for the thermal oxidation system using U.S. EPA Reference Methods [401 KAR 50:045, Section 1]. Subsequent testing shall be conducted every 59 months after the most recent test.

The permittee shall conduct a U.S. EPA Reference Method 5, no later than 180 days after initial startup of the emission unit to verify compliance demonstration with 401 KAR 59:010 PM Standard according to 401 KAR 59:010, Section 3(2) [401 KAR 50:045, Section 1].

**Emission Unit 06-001**

Emission Unit 06 (05-001) Aging				
Emission Point	Construction Commenced	Total Barrel Capacity	VOC Emission Factor	Reference
006-1	1885-2013	628,601	6.9 lbs/barrel/yr	AP-42 Tab 9.12.3-1
Warehouse Name	Occupancy Date		Barrel Capacity	
C	1885 (renovated in 1934)		24,000	
D	1907 (renovated in 2006)		19,000	
H	1935		15,000	
I	1935		49,140	
K	1935		49,140	
L	1936		40,000	
M	1936		40,000	
N	1937		50,000	
O	1937		50,000	
P	1941		52,170	
Q	1942		40,000	
R	1950 (renovated in 2016)		50,000	
S	1951 (renovated in 2016)		50,000	
T	1951 (renovated in 2015)		50,000	
U	1950 (renovated in 2015)		50,000	
X	2013		150	
V	1952		1	
<b>Initial Construction Date:</b> various between 1885-2013 with renovations in 2015 and 2016				
<b>Process Description:</b> Barrel Filling, Aging, and Dumping				
<b>Applicable Regulation:</b> 401 KAR 50:012, General application				
<b>Comments:</b> Emission Factors are from AP-42 Chapter 9.12 Table 9.12.3-1. The permittee shall monitor and record the number of barrels stored on a yearly basis. The Rickhouses included are located on the main property. Warehouses R & S are heated by two 1.44 MMBtu/hr Lochinvar Model No. CHN1442 boilers. Warehouses T & U are heated by one 1.44 Lochinvar Model No. CHN1442 boiler and one 1.86 MMBtu/hr CyClonetic Model No. JB1G-05-RM7896C boiler. All other warehouses that are part of this emission unit are steam-heated.				

**Emission Unit 06-002**

Emission Unit 06 (06-002) Aging on Farm				
Emission Point	Construction Commenced	Total Barrel Capacity	VOC	Reference
006-2	2017-2022	823,200	6.9 lbs barrels/hr	AP-42 Tab 9.12.3-1
Warehouse Name	Occupancy Date		Barrel Capacity	
AA	2018		58,800	
BB	2018		58,800	
CC	2018		58,800	
DD	2019		58,800	
EE	2019		58,800	
FF	2019		58,800	
GG	2020		58,800	
HH	2020		58,800	
II	----		58,800	
JJ	----		58,800	
KK	----		58,800	
LL	----		58,800	
MM	----		58,800	
NN	----		58,800	
<b>Initial Construction Date:</b> 14 new Aging Rickhouses to be built between 2017 and 2022				
<b>Process Description:</b> Barrel Filling, Aging, and Dumping				
<b>Applicable Regulation:</b> 401 KAR 50:012, General application				
<b>Comments:</b> Emission Factors are from AP-42 Chapter 9.12 Table 9.12.3-1. The permittee monitor and record the number of barrels stored on a yearly basis. The years identified in the table is the year of occupancy and not when construction commenced. Operation of these warehouses was detailed in a letter dated August 11, 2020 submitted to the Division on behalf of Buffalo Trace Distillery. The letter states: Air flow in and out of each warehouse occurs naturally through the 444 windows. To ensure consistent product quality, BTB takes certain measures to avoid extreme warehouse temperature changes. The walls and ceilings of the warehouses are covered with spray-on insulation to modulate temperature changes. Furthermore, two-to-three box fans are located on the ricks of the roofs to help maintain a more consistent temperature throughout the warehouses. In general, when temperatures begin to rise in the spring, BTB opens the warehouse windows and then closes the windows around Thanksgiving once temperatures begin to dip. The warehouses are also equipped with a basic, radian heat system that is buried in the concrete floors; heat is provided by small indirect heat exchange hot water units (5 MMBtu/hr) to maintain a temperature of approximately 50-55 degrees Fahrenheit during the coldest winter months to maintain product consistency, ensure that fire protection pipes do not freeze and burst, and provide comfort heating for warehouse employees.				

**Emission Unit 21** (Includes 21, 22, 23, and 31)

<b>Emission Unit 21 (Includes 21, 22, 23, &amp; 31) Distillation Systems</b>					
Emission Point	Description	Construction Commenced	Operating Rate	Emission Factor (lb/Mgal)	
				VOC	Acetaldehyde
21-001	No.1 Bourbon Distillation System – Beer Still #1	1956	17.669 Mgal/hr	0.321	0.016
21-002	No. 1 Bourbon Distillation System – Doubler Still #2	1956	1.304 Mgal/hr	0.321	0.016
22-001	Vodka Distillation System – Vodka Still #3 and Distillation Column Still #4	1967	2.188 Mgal/hr	0.321	0.016
23-001	Platinum Distillation System – Platinum Still #7, Still #8, and Still #9	2011	0.816 Mgal/hr	0.321	0.016
31-001	No. 2 Bourbon Distillation System – Beer Still #10	Proposed 2022	2.08 Mgal/hr	0.321	0.016
31-002	No. 2 Bourbon Distillation System – Doubler Still #11	Proposed 2022	1.19 Mgal/hr	0.321	0.016
<p><b>Process Description:</b> Distillation Process</p> <p><b>Applicable Regulation:</b></p> <p>401 KAR 50:012, General application</p> <p>401 KAR 63:020, Potentially hazardous matter or toxic substances</p> <p><b>Non-Applicable Regulation:</b></p> <p>401 KAR 51:017, Prevention of significant deterioration of air quality</p> <p><b>Comments:</b> Source is required to monitor VOC emissions on a monthly basis to comply with the source-wide limit. Emission Factors are based on an emissions test conducted by Oregon DEQ for Columbia Pacific Bio-Refinery 05-006-ST-01 (see page 67 of 75)</p> <p><a href="https://www.oregon.gov/deq/Programs/Documents/CPBREthanolAQPermitRtC.pdf">https://www.oregon.gov/deq/Programs/Documents/CPBREthanolAQPermitRtC.pdf</a></p>					

### Emission Unit 24 and 25

Emission Unit 24 (24-001)and 25 (25-001) Loadout Stations					
Emission Point	Description	Construction Commenced	Operating Rate	VOC Emission Factor (lb/Mgal)	
24-001	Building 3 Loadout Station	2015	4.5 Mgal/hr	0.693	
25-001	Regauge Loadout Station	2008	5.25 Mgal/hr	0.889	
<b>Process Description:</b> Distillation Process					
<b>Applicable Regulation:</b> 401 KAR 50:012, General application					
<b>Precluded Regulation:</b> 401 KAR 51:017, Prevention of significant deterioration of air quality					
<b>Comments:</b> Source is required to monitor VOC emissions on a monthly basis to preclude 225 tons per 12-month rolling total Emission Factors are based on an AP-42 Section 5.2.2.1.1, Engineering Calculation					

### Emission Unit 07

Emission Unit 07 (07-001) – Bottling Lines				
Emission Point	Description	Construction Commenced	Operating Rate	VOC Emission Factor (lb/Mgal)
07-008a	Bottling Line A	2019	5.71 barrels/hr (50 gallon barrels) total	1.1 lbs/barrel (50 gallon)
07-008b	Bottling Line B			
07-008c	Bottling Line C			
07-008d	Bottling Line D			
<b>Process Description:</b> Distillation Process				
<b>Applicable Regulation:</b> 401 KAR 50:012, General application				
<b>Precluded Regulation:</b> 401 KAR 51:017, Prevention of significant deterioration of air quality				
<b>Comments:</b> Source is required to monitor VOC emissions on a monthly basis to preclude 225 tons per 12-month rolling total Emission Factors are based on EIIPs Section 3.1.1 Charging to an Empty Vessel				

### Emission Unit 08

Emission Unit 08 (09-001) Indirect Heat Exchanger				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	0.10 lbs/MMBtu	401 KAR 59:015, Section 4(1)(b)	AP-42 Chapter 1.3, 1.4	Assumed based upon natural gas
Opacity	20% opacity	401 KAR 59:015, Section 4(2)	N/A	Assumed based upon natural gas combustion
SO <sub>2</sub>	0.80 lbs/MMBtu	401 KAR 59:015, Section 5(1)(b)	AP-42 Chapter 1.3, 1.4	Assumed based upon natural gas combustion

**Emission Unit 08 (09-001) Indirect Heat Exchanger**

**Initial Construction Date:** 01/1/1972

**Process Description:**

176 MMBtu/hr natural gas fired indirect heat exchanger. This boiler is used to provide steam for the fermentation of alcohol facility.

**Applicable Regulation:**

401 KAR 59:015, New indirect heat exchangers, applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972 (401 KAR 59:015, Section 2(1)).

**Non-applicable Regulation:**

401 KAR 63:002, Section 2(4)(jjjjj) 40 CFR 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

**Precluded Regulations:**

401 KAR 51:017, Prevention of significant deterioration of air quality

**Comments:**

The nameplate capacity of the unit is 176 MMBtu/hr. The source has requested to limit the heat input capacity to 140.8 MMBtu/hr. Compliance with this limitation will be demonstrated by comparing the maximum hourly fuel use rate against an equivalent 0.1332 MMscf/hr on a daily basis.

On May 28, 2020 the source conducted performance testing on the unit to develop appropriate NO<sub>x</sub>/CO emission factors at the reduced capacity. The results of the test are summarized below: Linear extrapolation of the results to 140.8 MMBtu/hr results in a NO<sub>x</sub> emission factor of 229.2 lb/MMscf and a CO emission factor of 20.1 lb/MMscf.

Run	Heat Input (MMBtu/hr)	NO <sub>x</sub> Result (lb/MMscf)	CO Result (lb/MMscf)
1	96.06	157.5	13.7
2	96.16	153.3	12.7
3	113.8	181.8	15.9
4	113.52	187.1	15.9

**Emission Unit 14**

<b>Emission Unit 14 (14-001) Indirect Heat Exchanger (Boiler 10)</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
PM	0.10 lbs/MMBtu	401 KAR 59:015, Section 4(1)(b)	AP-42 Chapter 1.3, 1.4	Assumed based upon natural gas, combustion
Opacity	20% opacity	401 KAR 59:015, Section 4(2)	N/A	Assumed based upon natural gas combustion and compliance for fuel oil, and off-spec waste oil visual observation and if visible emissions observed perform a U.S. EPA Reference Method 9 test
SO <sub>2</sub>	0.80 lbs/MMBtu	401 KAR 59:015, Section 5(1)(b)	AP-42 Chapter 1.3, 1.4	Assumed based upon natural gas combustion
<p><b>Initial Construction Date:</b> 05/2002</p> <p><b>Process Description:</b>                      This boiler is used to provide steam to facility (Boiler 10).</p> <p><b>Applicable Regulation:</b>                      401 KAR 59:015, New indirect heat exchangers, applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972 (401 KAR 59:015, Section 2(1)).                      401 KAR 60:005, Section 2(2)(d) 60.40c to 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units</p> <p><b>Non-applicable Regulation:</b>                      401 KAR 63:002, Section 2(4)(jjjjj) 40 CFR 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources</p> <p><b>Precluded Regulations:</b>                      401 KAR 51:017, Prevention of significant deterioration of air quality</p> <p><b>Comments:</b>                      Cleaver Brooks Burner CN4-200; SN: W-3696 Industrial Watertube Boiler Fuel is natural gas only, all other fuels are no longer fired in EU14. Updated maximum heat input rating. Updated a few emissions factors (final expansion application). Emission factors are based on AP-42 Chapter 1.4 and for Greenhouse Gases 40 CFR 98, Table C-1.</p>				

**Emission Unit 15**

<b>Emission Unit 15 (14-002) Indirect Heat Exchanger (Boiler 11)</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
PM	0.10 lbs/MMBtu	401 KAR 59:015, Section 4(1)(b)	AP-42 Chapter 1.3, 1.4	Assumed based upon natural gas, GNS
Opacity	20% opacity	401 KAR 59:015, Section 4(2)	N/A	Assumed based upon natural gas combustion. While burning GNS, perform weekly visual observation and if visible emissions observed, perform a U.S. EPA Reference Method 9 test
SO <sub>2</sub>	0.80 lbs/MMBtu	401 KAR 59:015, Section 5(1)(b)	AP-42 Chapter 1.3, 1.4	Assumed based upon natural gas, GNS combustion

**Initial Construction Date:** 05/2002

**Process Description:**

The boiler provides steam to facility (Boiler 11).

**Applicable Regulation:**

401 KAR 59:015, New indirect heat exchangers, applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972 (401 KAR 59:015, Section 2(1)).

401 KAR 60:005, Section 2(2)(d) 60.40c to 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

401 KAR 63:002, Section 2(4)(jjjjj) 40 CFR 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

**Non-applicable Regulation:** NA

**Precluded Regulations:**

401 KAR 51:017, Prevention of significant deterioration of air quality

**Comments:**

Notes: Cleaver Brooks Boiler (Industrial Watertube Boiler)/Limpsfield Burner LCNOAL175/00514 Natural Gas - 1020 MMBtu/MMscf; Grain Neutral Spirits - 69.095.4 MMBtu/Mgal Updated maximum heat input rating. Updated a few emissions factors. Changed NOX EF to 50 lbs/MMBtu per AP-42 Section 1.4 Table 1.4-1 (7/98), factor for large (>100 MMBtu/hr) boiler with LNBs. (per Application) Process 2 & 3 are no longer in operation; Units were previously listed incorrectly as 58 MMBtu/hr

Within 180 days of Final permit issuance (V-20-025), the permittee shall conduct one-time performance test while burning GNS. The test conducted shall be U.S. EPA Reference Methods 5, 7, 10E and 18. The emission factors generated will be used to determine actual emissions from GNS based on the annual throughput in order to monitor emissions for NO<sub>x</sub> and VOC emission limits specified in **Section D – Emission Limitations and Testing Requirements** of Permit: **V-20-025** [401 KAR 50:045].

### Emission Unit 16

<b>Emission Unit 16 (16-001) Indirect Heat Exchanger (Boiler 12)</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
PM	0.10 lbs/MMBtu	401 KAR 59:015, Section 4(1)(c)	AP-42 Chapter 1.3, and 1.4	Assumed based upon natural gas
Opacity	20% opacity	401 KAR 59:015, Section 4(2)	N/A	
SO <sub>2</sub>	0.80 lbs/MMBtu	401 KAR 59:015, Section 5(1)	AP-42 Chapter 1.3 and 1.4	
NO <sub>x</sub>	0.10 lbs/MMBtu	40 CFR 60.44b(a)	Manufacture Spec	An initial stack test
<b>Initial Construction Date:</b> 06/18 <b>Process Description:</b> The boiler is used to provide steam to facility (Boiler 12). <b>Applicable Regulation:</b> 401 KAR 59:015, New indirect heat exchangers, applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972 (401 KAR 59:015, Section 2(1)). 401 KAR 60:005, Section 2(2)(c) 40 CFR 60.40b to 60.49b (Subpart Db), Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units <b>Non-applicable Regulation:</b> NA <b>Precluded Regulations:</b> 401 KAR 51:017, Prevention of significant deterioration of air quality <b>Comments:</b> The initial stack test for this unit is to ensure compliance with the NO <sub>x</sub> emission limitation in 40 CFR 60 Subpart Db. Cleaver Brooks Boiler/Limpsfield Burner LCNOAL175/00514.				

### Emission Unit 17 & 18

Emission Unit 17 (17-001) & 18 (18-001)				
Emission Point	Construction Commenced	Total Barrel Capacity	VOC	Reference
017 Thunder	2018	1,120 gal	17.81 lb/Mgal (breathing loading and working combined)	Tanks and AP-42 Section 7.1
018 Farm	2018	250 gal		
<b>Initial Construction Date:</b> 2 gasoline storage tanks pre-2019				
<b>Process Description:</b> Each gasoline storage tank dispenses gasoline into the fuel tank of a motor vehicle, motor vehicle engine, nonroad vehicle, or nonroad engine.				
<b>Applicable Regulation:</b> 401 KAR 50:012, General application 401 KAR 63:002, Section 2(4)(ddddd) 40 CFR 63.11110 to 63.11132, Tables 1 to 3 (Subpart CCCCCC), National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities				
<b>Comments:</b> Emission Factors are from AP-42 Section 7.1 and Tanks ESP				

**Emission Unit 19**

<b>Emission Unit 19-001 - Natural Gas-fired Emergency Engine</b>		
<b>Initial Construction Date:</b> 11/2007		
<b>Manufactured:</b> 9/24/2007		
<b>Process Description:</b> Emergency engine		
<b>Emission Point</b>	<b>Rated Capacity (hp)</b>	<b>Fuel</b>
19-001 Generac generator model# SG070-K366.8N18HBYYC, NG-fired V10, EPA Certified, 6.8L Ford Engine	107	Natural Gas
<b>Applicable Regulations:</b> 401 KAR 60:005, Section 2(2)(eeee) 40 CFR 60.4230 to 60.4248, Tables 1 to 4 (Subpart JJJJ), Standards of Performance for Stationary Spark Ignition Internal Combustion Engines; 401 KAR 63:002, Section 2(4)(eeee), 40 CFR 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines Note: D.C. Circuit Court [Delaware v. EPA, 785 F. 3d I (D.C. Cir. 2015)] has vacated the provisions in 40 CFR 60, Subpart JJJJ that contain the 100-hour exemption for operation of emergency engines for purposes of emergency demand response under 40 CFR 60.4243(d)(2)(ii)-(iii). The D.C. Circuit Court issued the mandate for the vacatur on May 4, 2016 <b>Precluded Regulations:</b> 401 KAR 51:017, Prevention of significant deterioration of air quality		

**Emission Unit 19 (continued)**

<b>Emission Unit 19-002 - Natural Gas-fired Emergency Engine</b>		
<b>Initial Construction Date:</b> 7/2006		
<b>Manufactured:</b> 5/1/2006		
<b>Process Description:</b> Emergency engine		
<b>Emission Point</b>	<b>Rated Capacity (hp)</b>	<b>Fuel</b>
19-002 Cummins generator model# GGHF-5764905, with a NG-fired, EPA Certified, 6.8L Cummins Engine (WGS-1068)	126	Natural Gas
<b>Applicable Regulation:</b> 401 KAR 63:002, Section 2(4)(eeee), 40 CFR 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines Note: D.C. Circuit Court [Delaware v. EPA, 785 F. 3d I (D.C. Cir. 2015)] has vacated the provisions in 40 CFR 63, Subpart ZZZZ that contain the 100-hour exemption for operation of emergency engines for purposes of emergency demand response under 40 CFR 63.6640(f)(2)(ii)-(iii). The D.C. Circuit Court issued the mandate for the vacatur on May 4, 2016. <b>Precluded Regulations:</b> 401 KAR 51:017, Prevention of significant deterioration of air quality <b>Comments:</b> Emission Unit was constructed prior to January 1, 2009 and therefore are not subject to 40 CFR 60, Subpart JJJJ [40 CFR 60.4230(a)(4)(iv)].		

**Emission Unit 26-29**

Emission Unit 26-29 - Diesel-fired Emergency Engines					
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method	
All Pollutants	The engines shall meet the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113	40 CFR 60.4202(a)(2), 40 CFR 60.4205(b)	AP-42 3.4 and Manufacturer Specifications	The permittee shall operate and maintain each of the stationary CI internal combustion engines according to the manufacturer's emission-related written instructions	
	Each engine shall meet the emission standards over the life of the engine	40 CFR 60.4206		The permittee may change only those emission-related settings that are permitted by the manufacturer	
The permittee shall meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply					
Process Description: all engines utilize Ultra Low Sulfur Diesel (ULSD)					
Emission Point	Make/ Model)	Rated Capacity	NO <sub>x</sub>	VOC	Manufactured/ Construction Date
26-001	Caterpillar	315 HP (422 kW)	159.1 lb/Mgal	8.6 lb/Mgal	2018
27-001	Clark John Deere	315 HP (422 kW)	106 lb/Mgal	3.54 lb/Mgal	2016
28-001	Clark John Deere	315 HP (422 kW)	106 lb/Mgal	3.54 lb/Mgal	2016
29-001	Clark John Deere	400 HP (536 kW)	122.3 lb/Mgal	1.61 lb/Mgal	2018
<b>Applicable Regulations:</b> 401 KAR 60:005, Section 2(2)(dddd), 40 CFR 60.4200 to 60.4219, Tables 1 to 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines; Note: D.C. Circuit Court [Delaware v. EPA, 785 F. 3d I (D.C. Cir. 2015)] has vacated the provisions in 40 CFR Subpart IIII that contain the 100-hour exemption for operation of emergency engines for purposes of emergency demand response under 40 CFR 60.4211(f)(2)(ii)-(iii). The D. C. Circuit Court issued the mandate for the vacatur on May 4, 2016. 401 KAR 63:002, Section 2(4)(eeee), 40 CFR 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines					
<b>Precluded Regulations:</b> 401 KAR 51:017, Prevention of significant deterioration of air quality					
<b>Comments:</b> These units were added to the renewal application APE20180001.					

**Emission Unit 20**

<b>Emission Unit 20 (20-001) Indirect Heat Exchangers totaling 9.52 MMBtu/hr</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
PM	0.10 lbs/MMBtu	401 KAR 59:015, Section 4(1)(c)	AP-42 Chapter 1.3, and 1.4	Assumed based upon natural gas
Opacity	20% opacity	401 KAR 59:015, Section 4(2)	N/A	Assumed based upon natural gas combustion
SO <sub>2</sub>	0.80 lbs/MMBtu	401 KAR 59:015, Section 5(1)	AP-42 Chapter 1.3 and 1.4	Assumed based upon natural gas
<p><b>Initial Construction and/or Modification Date:</b> various  Warehouses R&amp;S: Two 2019 replacement indirect heat exchangers at 1.44 MMBtu/hr;  Warehouses T&amp;U One 2018 replacement indirect heat exchanger at 1.44 MMBtu/hr and one backup 2012 boiler at 1.86 MMBtu/hr;  Old Bottling Area: Two 1998 indirect heat exchangers at 1.81 MMBtu/hr  <b>Process Description:</b>  These indirect heat exchangers are used to provide space heat for the identified locations at the facility.  <b>Applicable Regulation:</b>  401 KAR 59:015, New indirect heat exchangers, applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972 (401 KAR 59:015, Section 2(1)).  <b>Non-applicable Regulation:</b>  401 KAR 60:005, Section 2(2)(d) 60.40c to 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, applicable to a steam generating unit with a capacity of less than 100 MMBtu/hr but greater than 10 MMBtu/hr which commenced on or after June 9, 1989. Does not apply. Individual units heat content is 5 MMBt/hr.  401 KAR 63:002, Section 2(4)(jjjjj) 40 CFR 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. Does not apply. Indirect heat exchangers are exempt due to firing only natural gas.  <b>Precluded Regulations:</b>  401 KAR 51:017, Prevention of significant deterioration of air quality  <b>Comments:</b> N/A</p>				

**Emission Unit 30**

<b>Emission Unit 30 (30-001) 14 Indirect Heat Exchangers rated at 5MMBtu/hr each</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
PM	0.10 lbs/MMBtu	401 KAR 59:015, Section 4(1)(c)	7.2 lb/MMscf, AP-42 Chapter and 1.4-2	Assumed based upon natural gas
Opacity	20% opacity	401 KAR 59:015, Section 4(2)	N/A	Assumed based upon natural gas combustion
SO <sub>2</sub>	0.80 lbs/MMBtu	401 KAR 59:015, Section 5(1)	0.6 lb/MMscf AP-42 Chapter 1.4-2	Assumed based upon natural gas

**Emission Unit 30 (30-001) 14 Indirect Heat Exchangers rated at 5MMBtu/hr each**

**Initial Construction Date:** Various between 2018-2022

**Process Description:**

These indirect heat exchangers are used to provide process heat for the 14 new rickhouses identified at the Farm

**Applicable Regulation:**

401 KAR 59:015, New indirect heat exchangers, applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9, 1972 (401 KAR 59:015, Section 2(1)).

**Non-applicable Regulation:**

401 KAR 60:005, Section 2(2)(d) 60.40c to 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, applicable to a steam generating unit with a capacity of less than 100 MMBtu/hr but greater than 10 MMBtu/hr which commenced on or after June 9, 1989. Does not apply. Individual units heat content is 5 MMBt/hr.

401 KAR 63:002, Section 2(4)(jjjjj) 40 CFR 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. Does not apply. Indirect heat exchangers are exempt due to firing only natural gas.

**Precluded Regulations:**

401 KAR 51:017, Prevention of significant deterioration of air quality

**Comments:**

Fourteen (14) 5 MMBtu/hr indirect heat exchangers, one for each of the new warehouses (EU06-002) located at the Farm.

### SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

#### Testing Requirements/Results:

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Throughput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
32-002	Regenerative Thermal Oxidizer	VOC destruction efficiency	401 KAR 50:045, Section 3	Initial testing to be conducted no later than 180 days after initial startup subsequent testing conducted no more than 59 months from the most recent test	U.S. EPA Reference Method Testing	TBD	TBD	Minimum Temperature	TBD	NA
32-004	Pneumatic Cyclone	PM removal efficiency	401 KAR 50:045, Section 3	Conduct a U.S. EPA Reference Method 5, no later than 180	U.S. EPA Reference Method 5	11.45 lbs/hr @ 6.5 tons/hr	TBD	Operating Rate (tons/hr)	TBD	NA

				days after initial startup						
EU 15	GNS fired Indirect Heat Exchanger			Within 180 days of Final permit issuance (V-20- 025)	U.S. EPA Reference Method 5, 7, 10E and 18	0.10 lb/MMB tu limit, VOC and NO <sub>x</sub> limit to preclude 401 KAR 51:017	TBD	Operating Rate and Emission Factors	TBD	NA

## SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

**Table A - Group Requirements:**

Emission and Operating Limit	Regulation	Emission Unit
<225 tons per 12-month rolling total for NO <sub>x</sub>	Preclude 401 KAR 51:001, Section 1(118)(a)2.b. & 401 KAR 51:017	Source Wide
<225 tons per 12-month rolling total for non-fugitive process emissions for VOC	Preclude 401 KAR 51:001, Section 1(118)(a)2.b. & 401 KAR 51:017	Source Wide
<36 tons per 12-month rolling total for NO <sub>x</sub>	Preclude 401 KAR 51:017, Sections 8 to 16	16, 20, and 30

The following units shall be monitored.

$$Pollutant < 225 \frac{tons}{year}, \sum_{EU_x} EU$$

$$EU_x = Operating Rate \frac{SCC}{hour} \times Emission Factor \frac{lb}{SCC} \times Activity \frac{hour}{12-month total} < 225 \frac{tons}{year}$$

Emission Units required monitoring for <250 tpy limit for NO <sub>x</sub> and VOC on a 12-month rolling total		
Emission Unit/Insignificant Activity	NO <sub>x</sub>	VOC
EU03 - 24 Fermentation Vessels	No	Yes
EU04 - Rotary Dryer	No	Yes
EU05 - Three Rotary Dryers	No	Yes
EU07 - Bottling Lines	No	Yes
EU08 - 176 MMBtu/hr Boiler	Yes	Yes
EU14 - 60.5 MMBtu/hr Boiler	Yes	Yes
EU15 - 60.5 MMBtu/hr Boiler	Yes	Yes
EU16 - 179.2 MMBtu/hr Boiler	Yes	Yes
EU17 - 1120 Gal Gasoline Tank (Thunder)	No	Yes
EU18 - 250 gal Gasoline Tank (Farm)	No	Yes
EU19 - Two Natural Gas Engines	Yes	Yes
EU20 - Nine small boilers	Yes	Yes
EU21 - No. 1 Bourbon Distillation System	No	Yes
EU22 - Vodka Distillation System	No	Yes
EU23 - Platinum Distillation System	No	Yes
EU24 - Building Loadout Station	No	Yes
EU25 - Regauge Loadout Station	No	Yes
EU26 - Diesel Generator Caterpillar 315 HP	Yes	Yes
EU27 - Clark Fire Pump Diesel Engine 315 HP	Yes	Yes
EU28 - Clark Fire Pump Diesel Engine 315 HP	Yes	Yes
EU29 - Clark Fire Pump Diesel Engine 315 HP	Yes	Yes
EU30 - Fourteen 5 MMBtu/hr indirect heat exchangers	Yes	Yes
EU31 - No. 2 Bourbon Distillation System	No	Yes

Emission Units required monitoring for <250 tpy limit for NO <sub>x</sub> and VOC on a 12-month rolling total		
EU32 - DDGS Dryhouse #2	No	Yes
IA4 - 02-002 - Beer Well	No	Yes
IA5 - 02-007 - 2 Spirits Process Vessels and Storage Tanks (103,025 gal/ea)	No	Yes
IA6 - 02-008 - Heads and Tails Tanks	No	Yes
IA7 - 02-009 - Receiving Cistern Tanks	No	Yes
IA9 - 07-005 - Blanton Fill Line #1	No	Yes
IA10 - 07-005a - Blanton Fill Line #2	No	Yes
IA 11 - 07-005b - Blanton/Weller Fill Line	No	Yes
IA12 - 07-005c - #52 Fill Line	No	Yes
IA13 - 07-006 - Labeling/Case Sealing	No	Yes
IA14 - 07-007 - Case Printing	No	Yes
IA20 - Three 10,000 gallon Grain Cookers	No	Yes
IA21 - Two 10,200 gallon Platinum Process Vessels and Storage Tanks	No	Yes
IA22 - Two 13,800 gallon Bourbon Process Vessels and Storage Tanks	No	Yes
IA23 Micro Distillation System	No	Yes
IA26 - Bitters Operations	No	Yes
IA28 - Dryhouse #1: two 110,000 gallon open to thick stillage storage tanks	No	Yes
IA30 - Cistern Barrel Filling Station	No	Yes
IA31 - Regauge Barrel Dumping	No	Yes
IA32 - Thin Stillage Tanks	No	Yes
IA33 - Misc Indoor Process/Storage Tanks in Bldg 3	No	Yes
IA34 - Misc Outdoor Process/Storage Tanks Near Bldg 3	No	Yes
IA35 - Misc. Process Tanks in Cistern Area (CR5, CR17-CR23)	No	Yes
IA36 - Misc. Process Tanks in Regauge (R2-R6, R10)	No	Yes
IA37 - Tank Farm Storage Tanks (S3-S5)	No	Yes
IA38 - Misc. Bldg. 33 Process/Storage Tanks in Chill Room	No	Yes
IA39 - Misc Bldg 33, 26, and 39 Process/Storage Tanks	No	Yes
IA40 - Misc. Bldg. 33 & 26 Process/Storage Tanks	No	Yes
IA41 - Misc. Bldg. 45 Process/Storage Tank	No	Yes
IA42 - Misc Bldg. 52 Process Storage Tank	No	Yes
IA44 - Two Cookers (40,000 gal each) with Drop Tanks	No	Yes
IA45 - Bldg. 81 Process/Storage Tanks in Ledgends Hall	No	Yes
IA46 - DDGS Dryhouse #2: Two Open-Top Thick Stillage Storage Tanks (110,000 gallon each)	No	Yes
IA47 - DDGS Dryhouse #2: Two Evaporators	No	Yes

**Table B - Summary of Applicable Regulations:**

Regulation	Basis of Determination	Emission Unit
401 KAR 50:012 General application		03, 04, 05, 06, 07, 17, 18, 21, 22, 23, 24, 25, 31, 32
401 KAR 59:010 New process operations		02B, 04, 32
401 KAR 59:015 New indirect heat exchangers		08,14, 15, 16, 20, 30
401 KAR 60:005, Section 2(2)(d) 40 CFR 60.40c to 60.48c (Subpart Dc), Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units		14 & 15
401 KAR 60:005, Section 2(2)(c) 40 CFR 60.40b to 60.49b (Subpart Db), Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units		16
401 KAR 60:005, Section 2(2)(dddd) 40 CFR 60.4200 to 60.4219, Tables 1 to 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines		26, 27, 28, 29
401 KAR 60:005, Section 2(2)(eeee) 40 CFR 60.4230 to 60.4248, Tables 1 to 4 (Subpart JJJJ), Standards of Performance for Stationary Spark Ignition Internal Combustion Engines		19-001
401 KAR 61:020, Existing Process Operation		02, 05
401 KAR 63:002, Section 2(4)(eeee) 40 CFR 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines		19, 26,
401 KAR 63:002, Section 2(4)(ddddd) 40 CFR 63.11110 to 63.11132, Tables 1 to 3 (Subpart CCCCCC), National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities		17 & 18
401 KAR 63:002, Section 2(4)(jjjjj) 40 CFR 63.11193 to 63.11237, Tables 1 to 8 (Subpart JJJJJJ), National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources		15
401 KAR 63:010 Fugitive emissions		01
401 KAR 63:020, Potentially hazardous matter or toxic substances		03, 04, 05, 21, 32

**Table C - Summary of Precluded Regulations:**

Regulation	Basis of Determination	Emission Unit
401 KAR 51:017, Significant deterioration of air, Sections 8 through 16		16, 20, 30

**Table D - Summary of Non Applicable Regulations:**

N/A

**Air Toxic Analysis**

The Division performed an air toxic analysis using AERMOD after requiring the source to provide air toxics analysis based on acetaldehyde emissions. Based on the application and the Air Modeling analysis performed by Trinity Consultants the Division conducted its independent modeling using the predicted maximum residential impact was compared against the November 2019 RSL table for residential air. Based on the parameter and modeling assumptions utilized, the predicted maximum residential impact of Acetaldehyde is in compliance with the 401 KAR 63:020 standard. The residential predicted maximum annual impact is a 5 year average. To be conservative, the highest year could also be utilized to demonstrate compliance with the standard. Based on the current set up, the source has conducted its necessary modeling and further modeling is not required.

**Single Source Determination**

N/A

## SECTION 5 – PERMITTING HISTORY

Permit	Permit type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
V-07-038	Renewal	APE20070001	10/12/2007	4/28/2008	Renewal	N/A
V-12-056	Renewal	APE20120002	1/30/2013	8/14/2013	Renewal	N/A

## **SECTION 6 – PERMIT APPLICATION HISTORY**

N/A

## **APPENDIX A – ABBREVIATIONS AND ACRONYMS**

AAQS	– Ambient Air Quality Standards
BACT	– Best Available Control Technology
BTD	– Buffalo Trace Distillery, LLC
Btu	– British thermal unit
CAM	– Compliance Assurance Monitoring
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
ESP	– Electrostatic Precipitator
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
HF	– Hydrogen Fluoride (Gaseous)
Mgal	– thousand gallons
MMBtu	– million British thermal units
mmHg	– Millimeter of mercury column height
MMscf	– million standard cubic feet
MSDS	– Material Safety Data Sheets
NAAQS	– National Ambient Air Quality Standards
NESHAP	– National Emissions Standards for Hazardous Air Pollutants
NSR	– New Source Review
NO <sub>x</sub>	– Nitrogen Oxides
PM	– Particulate Matter
PM <sub>10</sub>	– Particulate Matter equal to or smaller than 10 micrometers
PM <sub>2.5</sub>	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
SO <sub>2</sub>	– Sulfur Dioxide
tpy	– tons per year
VOC	– Volatile Organic Compounds